EVALUATION REPORT
POPULATION PROJECTIONS, ALBERTA
1977-2006

Bureau of Statistics
Alberta Treasury
7th Floor
Sir Frederick W. Haultain Bldg.
10820 - 98 Avenue
Edmonton, Alberta, Canada
T5K 0C8

Telephone: 403/427-3058
Telex: 037-2137

January, 1981

LI
JAN 2 8 1982
MUNICIPAL AFFAIRS

Commentary

This report briefly discusses the efficiency of the Alberta Population Projections produced by the Alberta Bureau of Statistics (ABS) in early 1979. These projections, developed from one mortality, three fertility and three migration assumptions, were based on the 1976 census populations and were extended to the year 2006. A comparison of these projections with both ABS estimates and those of Statistics Canada has been made and is outlined below. It should be noted that there is a difference between the ABS and Statistics Canada population estimates, primarily due to differences in migration methodology.

All nine projection series differ from the ABS estimates by less than 1/2 percent in the years 1977-80 with the exception of series 1, series 3 and series 6 which show a difference of 0.7%, 0.85% and 0.60%, respectively, in 1980 only. As of 1-Jun-80 all projection series except 5 and 8 were found to be lower than the estimate. This was due to the unanticipated refugee (Indo-Chinese) immigration to the province. The projections also compare favourably with the Statistics Canada estimates with the exception of a few projections which differ by more than 1/2 of one percent from the estimates. Tables 1 and 2 provide a comparison between the estimates and projections for both total population and a population growth, respectively.

Migration, being a very uncertain parameter of population growth, showed greater variation than was expected. Table 3 summarizes the variation of the projections from the estimates. Comparisons with the Statistics Canada estimates have not been made, however, the relevant total net migration estimates for the three years shown in Table 3 are 34,000, 35,400 and 42,000, respectively.

The age-composition of the estimated population was compared to that of the projected population in order to assess the quality of the latter. For this purpose only two projection series - series 4 and series 5 - were considered as these were recommended for use by the Population Projections Committee and have been in wide circulation in detailed form. These two series are based on the same inputs, differing only in their migration assumptions. Differences in age-composition of the projected and estimated population do not appear to be very

large. A comparison of the projections with the estimates with respect to the age composition is shown in tables 4 and 5 and in the pyramid charts.

Since information on total fertility rates is available only for 1977 and 1978 a detailed analysis of the fertility projection is not carried out in this report. For 1977 and 1978 the total fertility rates were estimated to be 2,014 and 1,980 respectively. The projected total fertility rates for these years are given below:

Fertility Assumptions

Year	Low	Medium	High
1977	2,067	2,109	2,151
1978	2,047	2,109	2,171

The projected number of births for the low and medium assumptions and the estimates are given below:

	1977	1978	1979	1980
Estimates	32,790	34,790	35,670	36,380
Projection:				
Low	32,060	33,730	35,300	36,790
	(-2.2%)	(-3.0%)	(-1.0%)	(1.1%)
Medium	32,660	34,770	36,540	38,410
	(0.4%)	(-.05%)	(2.4%)	(5.6%)

Additional information can be obtained by contacting the Economic and Demographic Models Unit.

TABLE 1
POPULATION, ALBERTA, 1977-80
COMPARISON BETWEEN ESTIMATES AND PROJECTIONS
(POPULATION IN THOUSANDS)

YEAR	ESTIMATES	PROJECTIONS															
		SERIES 1	PCT DIFF	SERIES 2	PCT DIFF	SERIES 3	PCT DIFF	SERIES 4	PCT DIFF	SERIES 5	PCT DIFF	SERIES 6	PCT DIFF	SERIES 7	PCT DIFF	SERIES 8	PCT DIFF	SERIES 9	PCT DIFF
1977	ABS 1899.5	1900.0	.026	1900.0	.026	1900.0	.026	1900.7	.063	1900.7	.063	1900.7	.063	1901.4	.100	1901.4	.100	1901.4	.100
	SC 1896.4	1900.0	.190	1900.0	.190	1900.0	.190	1900.7	.227	1900.7	.227	1900.7	.227	1901.4	.264	1901.4	.264	1901.4	.264
1978	ABS 1959.6	1957.6	-.102	1961.1	.077	1959.8	.010	1959.3	-.015	1962.8	.163	1961.5	.097	1961.1	.077	1964.6	.255	1963.3	.189
	SC 1954.2	1957.6	.174	1961.1	.353	1959.8	.287	1959.3	.261	1962.8	.440	1961.5	.374	1961.1	.353	1964.6	.532	1963.3	.466
1979	ABS 2021.0	2015.2	-.287	2024.3	.163	2017.7	-.163	2018.5	-.124	2027.5	.322	2021.0	.000	2021.7	.035	2030.8	.485	2024.2	.158
	SC 2012.5	2015.2	.134	2024.3	.586	2017.7	.258	2018.5	.298	2027.5	.745	2021.0	.422	2021.7	.457	2030.8	.909	2024.2	.581
1980	ABS 2091.8	2076.9	-.712	2089.5	-.110	2074.0	-.851	2082.1	-.464	2094.7	.139	2079.2	-.602	2087.3	-.215	2099.9	.387	2084.4	-.354
	SC 2078.5	2076.9	-.077	2089.5	.529	2074.0	-.217	2082.1	.173	2094.7	.779	2079.2	.034	2087.3	.423	2099.9	1.030	2084.4	.284

TABLE 2
POPULATION GROWTH, ALBERTA, 1977-80
COMPARISON BETWEEN ESTIMATES AND PROJECTIONS
(POPULATION IN THOUSANDS)

YEAR	ESTIMATES	PROJECTIONS															
		SERIES 1	PCT DIFF	SERIES 2	PCT DIFF	SERIES 3	PCT DIFF	SERIES 4	PCT DIFF	SERIES 5	PCT DIFF	SERIES 6	PCT DIFF	SERIES 7	PCT DIFF	SERIES 8	PCT DIFF	SERIES 9	PCT DIFF
1977	ABS 60.1	57.6	-4.16	61.1	1.66	59.8	-.50	58.6	-2.50	62.1	3.33	60.8	1.16	59.7	-.67	63.2	5.16	61.9	3.00
-78	SC 55.7	57.6	3.41	61.1	9.69	59.8	7.36	58.6	5.21	62.1	11.49	60.8	9.16	59.7	7.18	63.2	13.46	61.9	11.13
1978	ABS 61.4	57.6	-6.19	63.2	2.93	57.9	-5.70	59.2	-3.58	64.7	5.37	59.5	-3.09	60.6	-1.30	66.2	7.82	60.9	-.81
-79	SC 58.3	57.6	-1.20	63.2	8.40	57.9	-.69	59.2	1.54	64.7	10.98	59.5	2.06	60.6	3.95	66.2	13.55	60.9	4.46
1979	ABS 70.8	61.7	-12.85	65.2	-7.91	56.3	-20.48	63.6	-10.17	67.2	-5.08	58.2	-17.80	65.6	-7.34	69.1	-2.40	60.2	-14.97
-80	SC 66.0	61.7	-6.52	65.2	-1.21	56.3	-14.70	63.6	-3.64	67.2	1.82	58.2	-11.82	65.6	-.61	69.1	4.70	60.2	-8.79

NOTES: 1. REFERENCE DATE IS 1 JUNE OF EACH YEAR.
2. PCT DIFF IS PERCENT DIFFERENCE BETWEEN PROJECTIONS AND ESTIMATES.

SOURCE: ABS - ALBERTA BUREAU OF STATISTICS
SC - STATISTICS CANADA, ESTIMATES OF POPULATION FOR CANADA AND THE PROVINCES, JUNE 1, CAT. NO. 92-201, ANNUAL

TABLE 3 MIGRATION, ALBERTA 1977-80
ESTIMATE COMPARED TO PROJECTION

MIGRATION SET A

YEARS	INTERPROVINCIAL			INTERNATIONAL			TOTAL		
	MIGRATION	PROJECTION	PCT DIFF.	MIGRATION	PROJECTION	PCT DIFF.	MIGRATION	PROJECTION	PCT DIFF.
1977-78	20,400	26,000	+27.45	10,200	12,500	+22.55	30,600	38,500	+25.82
1978-79	30,055	26,900	-10.50	7,440	12,500	+68.01	39,002	39,400	+ 1.02
1979-80	33,751	27,700	-17.93	13,265	12,500	- 5.77	47,016	40,200	-14.50

MIGRATION SET B

YEARS	INTERPROVINCIAL			INTERNATIONAL			TOTAL		
	MIGRATION	PROJECTION	PCT DIFF.	MIGRATION	PROJECTION	PCT DIFF.	MIGRATION	PROJECTION	PCT DIFF.
1977-78	20,400	25,200	+23.53	10,200	12,000	+17.65	30,600	37,200	+21.57
1978-79	30,055	22,300	-25.80	7,440	12,000	+61.29	39,002	34,300	-12.06
1979-80	33,751	19,600	-41.93	13,265	12,000	- 9.54	47,016	31,600	-32.79

MIGRATION SET C

YEARS	INTERPROVINCIAL			INTERNATIONAL			TOTAL		
	MIGRATION	PROJECTION	PCT DIFF.	MIGRATION	PROJECTION	PCT DIFF.	MIGRATION	PROJECTION	PCT DIFF.
1977-78	20,400	22,500	+10.29	10,200	12,500	+22.55	30,600	35,000	+14.38
1978-79	30,055	21,500	-28.46	7,440	12,500	+68.01	39,002	34,000	-12.82
1979-80	33,751	24,500	-27.41	13,265	12,500	- 5.77	47,016	37,000	-21.30

Notes:
1. Years ending 31-May
2. Sets A and B were prepared by the Alberta Bureau of Statistics in conjunction with the Alberta Population Projections Committee
3. Set C was derived by the Planning Secretariat, Alberta Advanced Education and Manpower using an economic model

Source: Alberta Bureau of Statistics

TABLE 4 POPULATION AGE-COMPOSITION, ESTIMATES V.S. PROJECTIONS, ALBERTA, 1977 - 1980
PROJECTION SERIES 4

AGE	1977 MALE EST.	1977 MALE PROJ.	1977 FEMALE EST.	1977 FEMALE PROJ.	1978 MALE EST.	1978 MALE PROJ.	1978 FEMALE EST.	1978 FEMALE PROJ.
	(POPULATION IN THOUSANDS)							
0 - 4	81.4	81.6	77.5	77.9	84.0	85.1	80.2	81.6
5 - 9	84.3	84.3	79.4	79.7	84.7	85.4	80.1	80.7
10 - 14	94.1	94.0	90.0	90.0	91.7	91.5	87.1	87.2
15 - 19	101.7	101.5	96.8	96.4	104.5	103.5	99.9	98.7
20 - 24	101.2	101.7	97.6	98.5	104.8	106.9	100.9	103.1
25 - 29	88.9	89.9	84.4	84.2	94.2	95.7	88.8	88.5
30 - 34	72.6	72.4	70.4	68.9	79.3	78.1	76.6	73.9
35 - 39	56.2	56.0	53.9	53.9	60.2	59.6	58.7	56.8
40 - 44	52.8	52.7	49.1	49.1	52.9	52.7	49.7	49.6
45 - 49	50.8	50.7	46.7	46.5	51.9	51.7	47.7	47.5
50 - 54	44.0	44.0	44.0	44.2	45.3	45.2	44.2	44.4
55 - 59	37.9	37.9	39.0	39.1	39.3	39.5	40.8	41.0
60 - 64	30.8	30.9	32.2	32.3	31.3	31.3	33.1	33.2
65 - 69	24.6	24.5	25.6	25.6	25.1	25.0	26.6	26.7
70 - 74	18.8	18.8	19.7	19.6	19.2	19.1	20.7	20.5
75 - 79	11.8	11.8	13.7	13.8	12.5	12.5	14.6	14.4
80 - 84	6.7	6.6	8.8	8.9	6.7	6.7	9.1	9.2
85 - 89	3.8	3.7	5.0	5.0	3.7	3.5	5.2	5.3
90+	1.7	1.7	2.4	2.3	1.8	1.7	2.5	2.3
TOTAL	964.1	964.7	936.2	935.9	993.1	994.7	966.5	964.6

AGE	1979 MALE EST.	1979 MALE PROJ.	1979 FEMALE EST.	1979 FEMALE PROJ.	1980 MALE EST.	1980 MALE PROJ.	1980 FEMALE EST.	1980 FEMALE PROJ.
0 - 4	88.4	89.9	84.7	86.0	91.4	95.8	80.5	91.2
5 - 9	85.3	85.9	80.8	81.4	89.6	86.5	85.0	81.7
10 - 14	88.6	89.3	84.9	85.2	94.7	89.2	87.8	84.8
15 - 19	106.5	105.0	102.9	99.9	111.7	104.6	110.0	99.9
20 - 24	109.7	110.7	105.2	106.5	113.0	114.1	109.3	109.7
25 - 29	100.1	102.6	94.6	94.6	103.0	110.1	93.8	101.7
30 - 34	83.8	83.3	80.6	77.9	87.6	90.5	77.0	82.3
35 - 39	65.2	63.4	60.8	60.0	66.7	66.8	65.0	63.3
40 - 44	53.5	53.1	50.9	50.7	55.6	54.3	56.1	52.1
45 - 49	52.8	52.5	48.5	48.1	52.4	52.5	54.9	48.3
50 - 54	46.6	46.4	44.7	45.0	44.0	47.8	48.4	45.9
55 - 59	40.7	40.8	42.4	42.7	42.3	41.5	43.4	43.5
60 - 64	31.8	31.8	33.6	33.6	33.1	32.8	36.1	35.0
65 - 69	25.8	25.6	28.2	28.2	25.7	26.6	28.8	29.6
70 - 74	19.4	19.3	21.4	21.1	22.2	19.5	24.6	21.6
75 - 79	13.3	13.2	15.4	15.0	15.8	13.5	17.2	15.7
80 - 84	6.9	6.8	9.6	9.6	8.2	7.1	8.7	10.3
85 - 89	3.5	3.5	5.2	5.5	1.3	3.3	3.5	5.6
90+	1.9	1.8	2.7	2.4	1.1	1.8	3.5	2.5
TOTAL	1023.9	1024.9	997.1	993.4	1059.4	1057.5	1031.6	1024.7

SOURCE: ALBERTA BUREAU OF STATISTICS

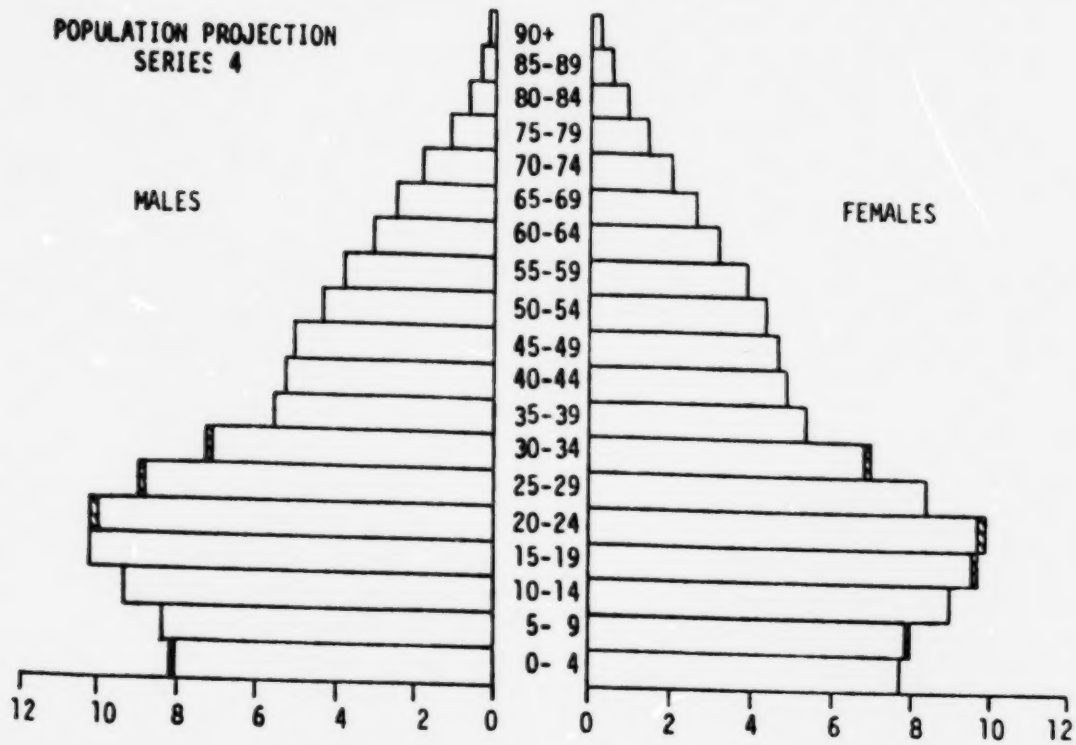
TABLE 5 POPULATION AGE-COMPOSITION, ESTIMATES V.S. PROJECTIONS, ALBERTA, 1977 - 1980
PROJECTION SERIES 5

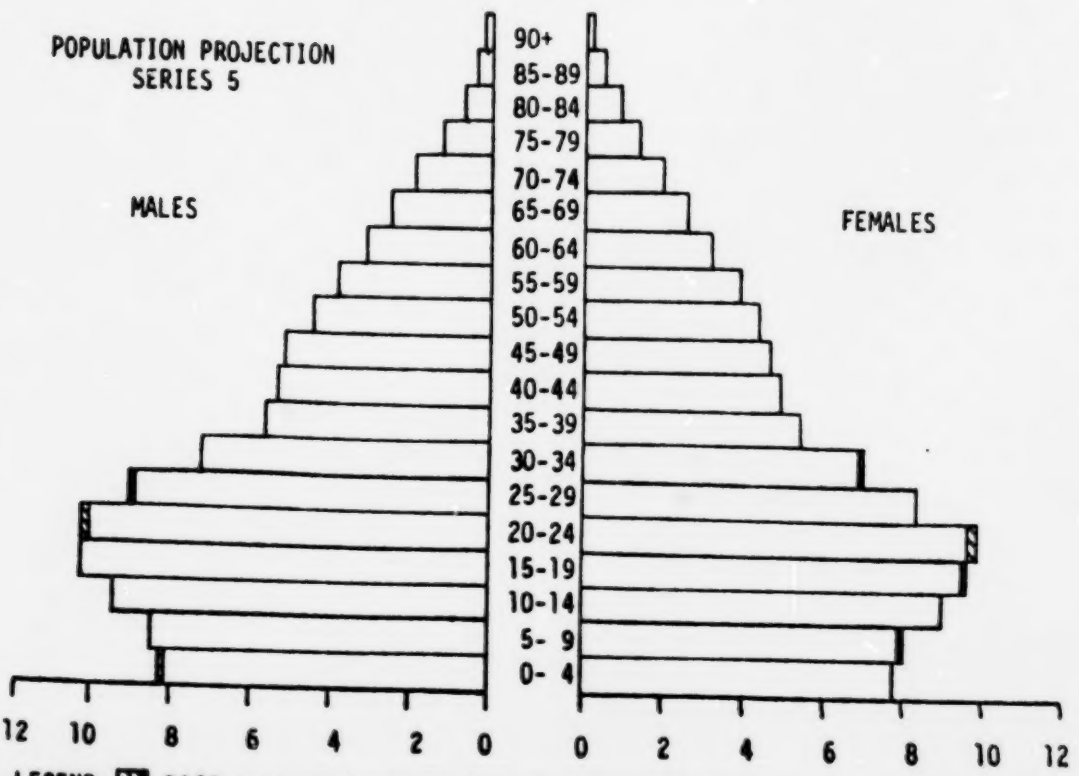
AGE	1977 MALE EST.	1977 MALE PROJ.	1977 FEMALE EST.	1977 FEMALE PROJ.	1978 MALE EST.	1978 MALE PROJ.	1978 FEMALE EST.	1978 FEMALE PROJ.
	(POPULATION IN THOUSANDS)							
0 - 4	81.4	81.6	77.5	77.9	84.0	85.4	80.2	81.8
5 - 9	84.3	84.3	79.4	79.7	84.7	85.4	80.1	80.7
10 - 14	94.1	94.0	90.0	90.0	91.7	91.7	87.1	87.5
15 - 19	101.7	101.5	96.8	96.4	104.5	103.7	99.9	98.7
20 - 24	101.2	101.7	97.6	98.5	104.8	107.4	100.9	103.6
25 - 29	88.9	89.9	84.4	84.2	94.2	96.1	88.8	88.8
30 - 34	72.6	72.4	70.4	68.9	79.3	78.2	76.6	73.9
35 - 39	56.2	56.0	53.9	53.9	60.2	59.7	58.7	56.8
40 - 44	52.8	52.7	49.1	49.1	52.9	52.8	49.7	49.7
45 - 49	50.8	50.7	46.7	46.5	51.9	51.7	47.7	47.5
50 - 54	44.0	44.0	44.0	44.2	45.3	45.2	44.2	44.5
55 - 59	37.9	37.9	39.0	39.1	39.3	39.5	40.8	41.0
60 - 64	30.8	30.9	32.2	32.3	31.3	31.4	33.1	33.2
65 - 69	24.6	24.5	25.6	25.6	25.1	25.0	26.6	26.7
70 - 74	16.8	18.8	19.7	19.6	19.2	19.1	20.7	20.5
75 - 79	11.8	11.8	13.7	13.8	12.5	12.5	14.6	14.4
80 - 84	6.7	6.6	8.8	8.9	6.7	6.7	9.1	9.2
85 - 89	3.8	3.7	5.0	5.0	3.7	3.5	5.2	5.3
90+	1.7	1.7	2.4	2.3	1.8	1.7	2.5	2.3
TOTAL	964.1	964.7	936.2	935.9	993.1	996.7	966.5	966.1

AGE	1979 MALE EST.	1979 MALE PROJ.	1979 FEMALE EST.	1979 FEMALE PROJ.	1980 MALE EST.	1980 MALE PROJ.	1980 FEMALE EST.	1980 FEMALE PROJ.
0 - 4	88.4	90.3	84.7	86.5	91.4	95.8	80.5	91.7
5 - 9	85.3	86.4	80.8	81.8	89.6	87.2	85.0	82.2
10 - 14	88.6	89.6	84.9	85.5	94.7	89.6	87.8	85.2
15 - 19	106.6	105.5	102.9	100.3	111.7	105.2	110.0	100.3
20 - 24	109.7	111.8	105.2	107.6	113.0	115.5	109.3	111.0
25 - 29	100.1	103.6	94.6	95.2	103.0	111.8	93.8	102.7
30 - 34	83.8	84.3	80.6	78.2	87.6	91.3	77.0	82.6
35 - 39	65.2	63.3	60.8	60.1	66.7	66.9	65.0	63.4
40 - 44	53.5	53.1	50.9	51.0	55.6	54.3	56.1	52.4
45 - 49	52.8	52.6	48.5	45.4	52.4	52.6	54.9	48.4
50 - 54	46.6	46.4	44.7	45.1	44.0	48.1	48.4	46.0
55 - 59	40.7	40.9	42.4	42.7	42.3	41.5	43.4	43.5
60 - 64	31.8	31.8	33.6	33.6	33.1	32.8	36.1	35.1
65 - 69	25.8	25.6	28.2	28.4	25.7	26.7	26.8	29.6
70 - 74	19.4	19.3	21.4	21.2	22.2	19.5	24.6	21.7
75 - 79	13.3	13.2	15.4	15.0	15.8	13.5	17.2	15.7
80 - 84	6.9	6.8	9.6	9.6	8.2	7.1	8.7	10.4
85 - 89	3.5	3.5	5.2	5.5	1.3	3.3	3.5	5.6
90+	1.9	1.8	2.7	2.4	1.1	1.8	3.5	2.5
TOTAL	1023.9	1029.8	997.1	995.1	1059.4	1064.5	1031.6	1030.0

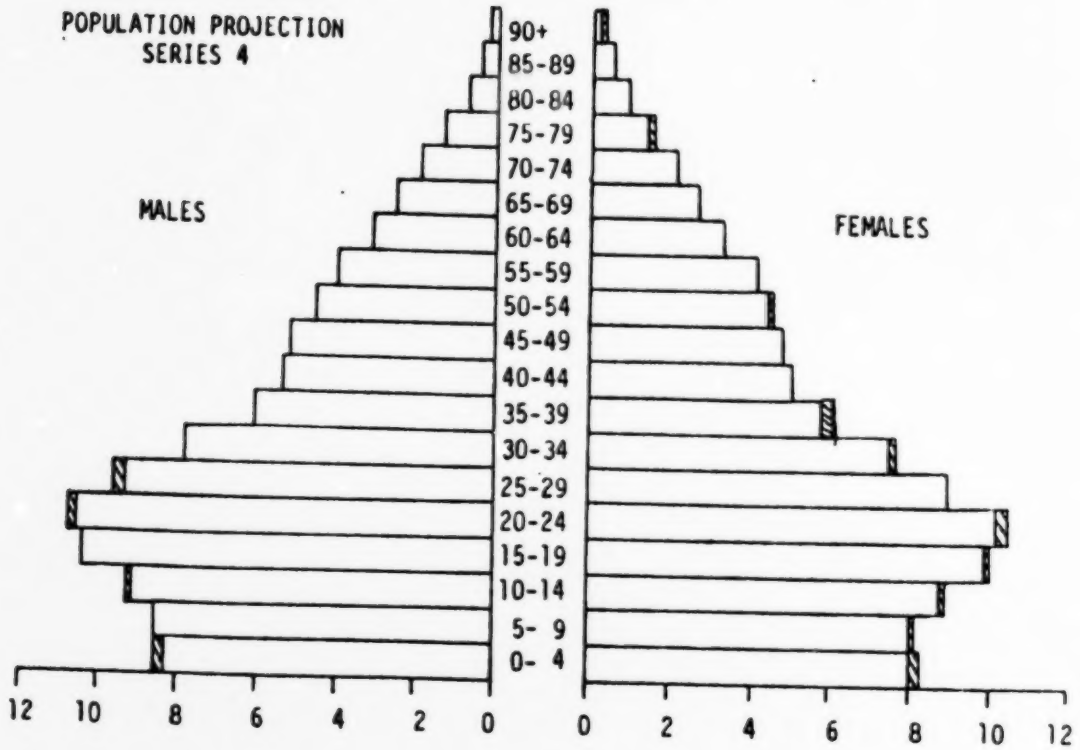
SOURCE: ALBERTA BUREAU OF STATISTICS

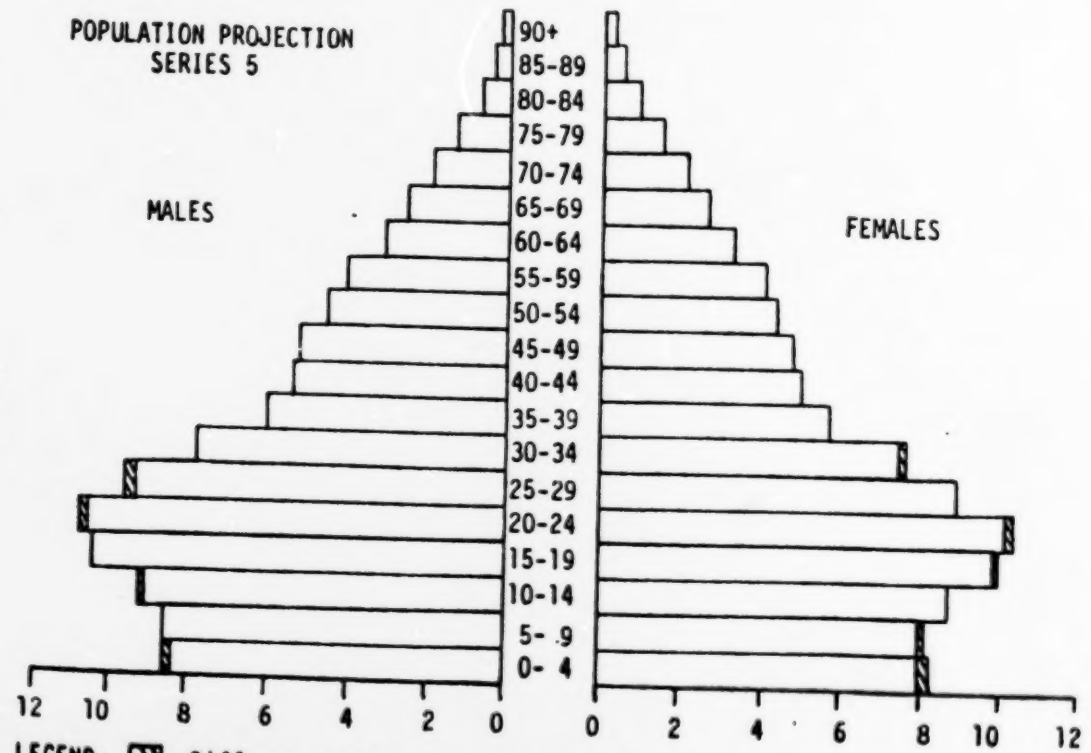
AGE STRUCTURE OF POPULATION BY SEX, ALBERTA 1977
ESTIMATES COMPARED TO PROJECTIONS
(POPULATION IN TEN THOUSANDS)



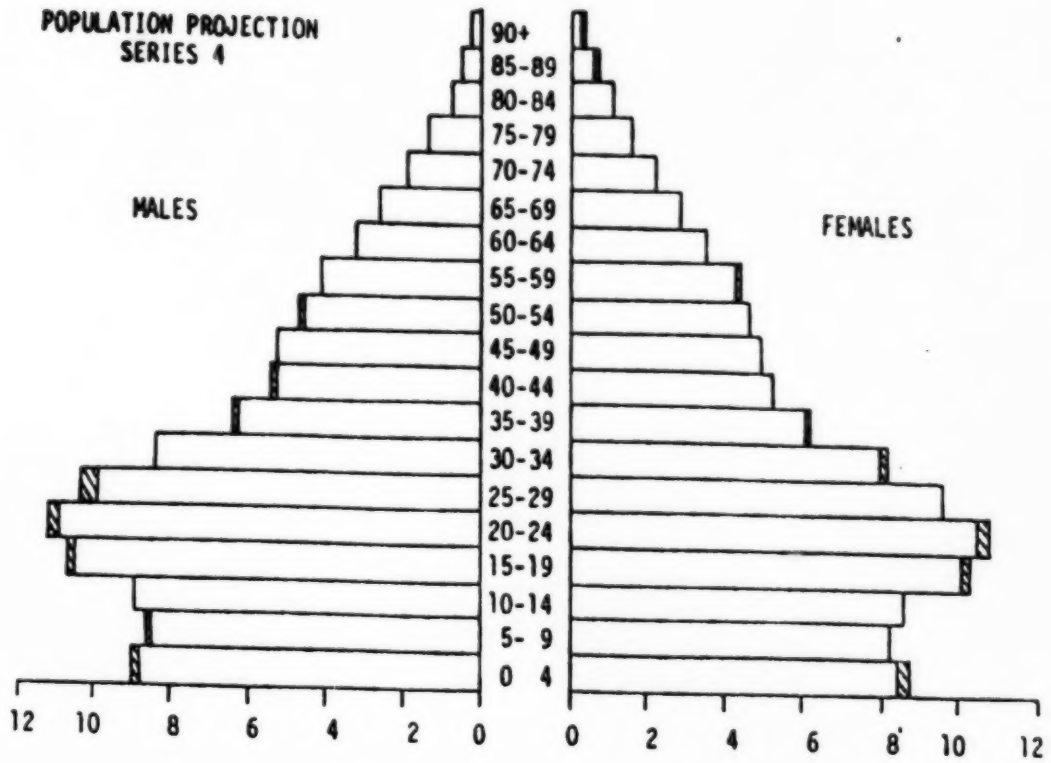


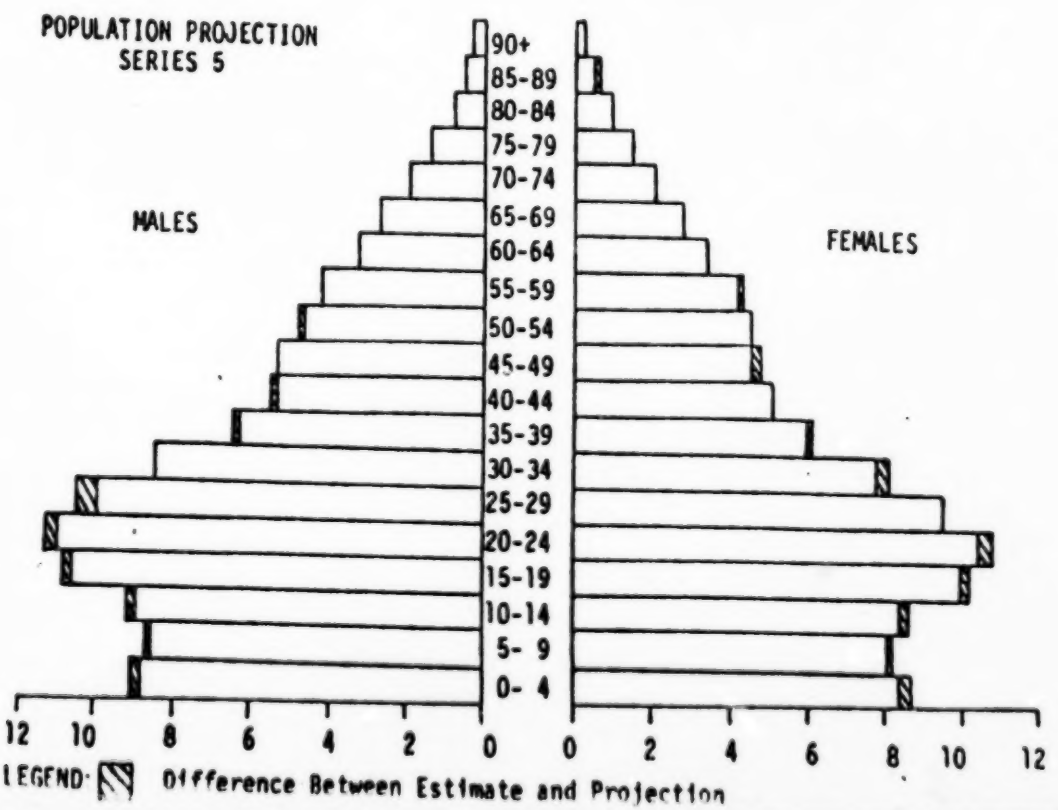
AGE STRUCTURE OF POPULATION BY SEX, ALBERTA 1978
ESTIMATES COMPARED TO PROJECTIONS
(POPULATION IN TEN THOUSANDS)





AGE STRUCTURE OF POPULATION BY SEX, ALBERTA 1979
ESTIMATES COMPARED TO PROJECTIONS
(POPULATION IN TEN THOUSANDS)





AGE STRUCTURE OF POPULATION BY SEX, ALBERTA 1980
ESTIMATES COMPARED TO PROJECTIONS
(POPULATION IN TEN THOUSANDS)